



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,746	07/28/2006	Jun Tominaga	060551	1202
23850	7590	02/23/2009	EXAMINER	
KRATZ, QUINTOS & HANSON, LLP 1420 K Street, N.W. Suite 400 WASHINGTON, DC 20005			SELLS, JAMES D	
ART UNIT	PAPER NUMBER			
		1791		
MAIL DATE	DELIVERY MODE			
02/23/2009	PAPER			

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/587,746	Applicant(s) TOMINAGA ET AL.
	Examiner James Sells	Art Unit 1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 16-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 16-30 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement (PTO/IS/06)
Paper No(s)/Mail Date 07/28/2006
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- 5) Notice of Informal Patent Application
- 6) Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 16-19 and 27-28 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Wolcott (US Patent 4,859,378).

Regarding claim 16, Wolcott discloses an ultrasonic welding system. As shown in Figs. 1-2, the system comprises an ultrasonic welding structure for bonding a columnar heating target (stud 14) formed with a resin (workpiece 12) to a predetermined bonding target (workpiece 16) by pressing a resonator (ultrasonic horn 22) against the heating target and applying a high frequency vibration from the resonator to the heating target.

Applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concepts of the resin material, the bonding target includes an

insertion hole for inserting the heating target, and the insertion hole includes a notch formed in an inner edge of the insertion hole on a side facing the resonator has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 17, applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of the notch serves as an acceptance unit that accepts the heating target in a molten state has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 18, applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of the notch serves as a stress relaxing unit that relaxes a stress generated within the heating target due to a contact

with the inner edge of the insertion hole has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 19, Wolcott shows a surface (flat output surface) of the resonator (horn 22) on which the resonator contacts with the heating target is formed in a substantially flat shape. See Fig. 1 and col. 2, lines 38-41.

Applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of the heating target includes a resonator connecting unit that is formed to protrude toward the resonator has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 27, Wolcott discloses an ultrasonic welding system. As shown in Figs. 1-2, the system comprises an ultrasonic welding structure for bonding a columnar heating target (stud 14) formed with a resin (workpiece 12) to a predetermined bonding target (workpiece 16) by pressing a resonator (ultrasonic horn 22) against the heating target and applying a high frequency vibration from the resonator to the heating target.

Applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concepts of the columnar heating target formed with a resin and the heating target includes a large-diameter portion located on a side of a base of the heating target; and a small-diameter portion located on a side of the resonator relative to the large- diameter portion, with a smaller diameter than a diameter of the large-diameter portion have been fully considered, but are not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 28, applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concepts of the bonding target includes an insertion hole for inserting the heating target, and a boundary between the large-diameter portion and the small-diameter portion of the heating target is arranged downward of an upper surface of the bonding target in a state in which the heating

target is inserted into the insertion hole have been fully considered, but are not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

3. Claims 20 and 22-26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Otani et al (JP-2001-171008)

Regarding claim 20, Otani discloses an ultrasonic welding system. As shown in Figs. 6-11, Otani shows an ultrasonic welding structure for bonding a columnar heating target (element 23) to a predetermined bonding target (element 30) by pressing a resonator (ultrasonic horn 50) against the heating target and applying a high frequency vibration from the resonator to the heating target, wherein the resonator includes a protruding portion that protrudes from a bottom of the resonator toward the heating target, and the protruding portion is formed in a substantially semispherical or conical shape (shown in Figs. 6-11).

Applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of a columnar heating target formed with a resin has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 22, Otani discloses an ultrasonic welding system. As shown in Figs. 6-11, Otani shows an ultrasonic welding structure for bonding a columnar heating target (element 23) to a predetermined bonding target (element 30) by pressing a resonator (ultrasonic horn 50) against the heating target and applying a high frequency vibration from the resonator to the heating target, wherein the resonator includes a protruding portion that protrudes from a bottom of the resonator toward the heating target (shown in Figs. 6-11).

Applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concepts of a columnar heating target formed with a resin and the heating target includes a resonator acceptance unit formed at least in a concave shape with relative to the resonator have been fully considered, but are not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 23, Otani shows the protruding portion on the ultrasonic horn is formed in a rounded or substantially semispherical shape.

Applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App

1969). Furthermore, "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of the resonator acceptance unit is formed in a substantially conical shape with a diameter large enough to include the protruding portion formed in the substantially semispherical shape has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 24, applicant is reminded that "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim." *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of the resonator acceptance unit is an elongated hole formed along a direction of pressing the resonator has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 25, applicant is reminded that "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim." *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, "Inclusion of material or article worked upon by a

structure being claimed does not impart patentability to the claims." *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of the resonator acceptance unit is a penetrating hole formed along a direction of pressing the resonator to reach a bottom of the heating target has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 26, applicant is reminded that "[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim." *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of a notch is provided in an upper edge of the resonator acceptance unit has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

4. Claim 21 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Daly (US Patent 5,902,426).

Regarding claim 21, Daly discloses an ultrasonic welding system. As shown in Figs. 2 and 8-9, Daly shows an ultrasonic welding structure (horn 22) for applying a high frequency vibration from the resonator to the heating target, wherein the resonator includes a protruding portion (surface 38) that protrudes from a bottom of the resonator

toward the heating target, and an inclined surface is formed on the resonator (see Fig.2) from the bottom of the resonator to a base of the protruding portion.

Applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of bonding a columnar heating target formed with a resin to a predetermined bonding target has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Otani et al (JP-2001-171008) in view of Daly (US Patent 5,902,426).

Regarding claim 29, Otani discloses an ultrasonic welding system. As shown in Figs. 6-11, Otani shows an ultrasonic welding structure for bonding a columnar heating target (element 23) to a predetermined bonding target (element 30) by pressing a

resonator (ultrasonic horn 50) against the heating target and applying a high frequency vibration from the resonator to the heating target, wherein the resonator includes a protruding portion that protrudes from a bottom of the resonator toward the heating target, and the protruding portion is formed in a substantially semispherical or conical shape (shown in Figs. 6-11).

However, Otani does not disclose an inclined surface formed from the bottom of the resonator in the manner claimed by the applicant. Regarding this difference, the applicant is directed to the reference of Daly.

Daly discloses an ultrasonic welding system. As shown in Figs. 2 and 8-9, Daly shows an ultrasonic welding structure (horn 22) for applying a high frequency vibration from the resonator to the heating target, wherein the resonator includes a protruding portion (surface 38) that protrudes from a bottom of the resonator toward the heating target, and an inclined surface is formed on the resonator (see Fig.2) from the bottom of the resonator to a base of the protruding portion.

It would have been obvious to one having ordinary skill in the art to employ an inclined surface is formed on the resonator from the bottom of the resonator to a base of the protruding portion, as taught by Daly, in the apparatus of Otani in order to provide the predictable result facilitating handling of workpieces by accommodating various shapes and configurations.

Applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App

1969). Furthermore, "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of bonding a columnar heating target formed with a resin and the heating target includes a resonator acceptance unit in a shape of a penetrating hole formed along a direction of pressing the resonator to reach a bottom of the heating target have been fully considered, but are not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

7. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wolcott (US Patent 4,859,378) in view of Inoue (JP62-140823).

Regarding claim 30, Wolcott discloses an ultrasonic welding method. As shown in Figs. 1-2, the method comprises bonding a columnar heating target (stud 14) formed with a resin (thermoplastic workpiece 12) to a predetermined bonding target (workpiece 16) by pressing a resonator (ultrasonic horn 22) against the heating target and applying a high frequency vibration from the resonator to the heating target, the ultrasonic welding method comprising: heating including pressing the contact portion heated at the preheating against the heating target to apply a high frequency vibration to the heating target. See col. 2, lines 212-51.

However, Wolcott does not disclose preheating a contact portion of the resonator on which the resonator contacts with the heating target in the manner claimed

by the applicant. Regarding this difference, the applicant is directed to the reference of Inoue.

Inoue discloses an ultrasonic welding system which employs ultrasonic 3 to weld materials 9 together. Induction heater 14 preheats tip 4 of horn 3 in order to speed up starting of the operation and to strongly and securely weld the materials together. It would have been obvious to one having ordinary skill in the art to employ a preheater to preheat a contact portion of the resonator on which the resonator contacts with the heating target, as taught by Inoue, in the method of Wolcott in order to provide the predictable result of speeding up starting of the operation and strongly and securely welding the materials together.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 22-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22, lines 6-7, "with relative to the resonator" needs to be amended to correct a grammatical error.

Telephone/Fax

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Sells whose telephone number is (571) 272-1237. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Phil Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James Sells/
Primary Examiner, Art Unit 1791